AMENDMENTS TO THE CLAIMS

1. (Currently amended) A body-insertable apparatus comprising:

an array of probes, each of the probes comprising at least one probe material having an affinity for one or more constituent molecules in a body;

a light source capable of generating light, wherein the generated light impinges upon at least one probe material and causes a secondary light to be emitted from the probe material when the probe material is linked to a molecule to which the probe material has an affinity;

~~an array of probes, each of the probes comprising at least one optically detectable probe material having an affinity for one or more constituent molecules in the body and having a detectable optical property when linked to a molecule with which the probe material has an affinity, and wherein at least one of the probes is disposed to receive the light generated by the light source; and~~

a detector for detecting ~~optical properties~~ the secondary emission of light of at least one of the ~~probes~~ probe materials and for converting ~~optical signals representative of the detected optical properties~~ the secondary emission of light to electrical signals, the light source, the probes, and the detector adapted for placement together in an area of interest within a body.

2. (Previously presented) The apparatus of claim 1 wherein said probe material binds to an oligonucleotide.

3. (Previously presented) The apparatus of claim 1 wherein said probe material binds to a protein.

4. (Previously presented) The apparatus of claim 1 wherein said probe material is fluorescently labeled.

5-6. (Canceled)

7. (Previously presented) The apparatus of claim 1 wherein the probes comprise a readable polydeoxynucleotide array.

8. (Previously presented) The apparatus of claim 1 wherein the probes are disposed in a plurality of chambers within a frame.

9. (Original) The apparatus of claim 8 wherein said frame comprises a molded material.

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10. (Original) The apparatus of claim 8 wherein said frame comprises a foraminous material.

11. (Previously presented) The apparatus of claim 1 further comprising optics that direct the light to at least one of the probes.

12. (Previously presented) The apparatus of claim 11 wherein said optics comprises a mirror.

13. (Previously presented) The apparatus of claim 12 wherein said mirror is adjustable.

14. (Previously presented) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to a processing unit.

15. (Previously presented) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to an amplifier.

16. (Previously presented) The apparatus of claim 1 wherein said body-insertable apparatus is electrically connected to a display.

17. (Previously presented) The apparatus of claim 7 wherein the probes are positioned adjacent to said detector.

18-19. (Canceled)

20. (Previously presented) The apparatus of claim 1 wherein the light source comprises a light-emitting diode.

21. (Previously presented) The apparatus of claim 1 wherein the light source is capable of generating light at wavelengths in a range from about 1100 nm to about 250 nm.

22. (Currently amended) The apparatus of claim 1 wherein said detector comprises a photodiode responsive to light emitted by said [[probe]] probe material.

23. (Original) The apparatus of claim 1 wherein said detector comprises a light wavelength detection system.

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24. (Original) The apparatus of claim 23 wherein said light wavelength detection system comprises a bandpass filter.

25. (Canceled)

26. (Previously presented) The apparatus of claim 1 wherein said body-insertable apparatus comprises a catheter.

27. (Previously presented) The apparatus of claim 1 wherein said body-insertable apparatus defines one or more lumens extending through the length of said body-insertable apparatus.

28. (Previously presented) The apparatus of claim 27 wherein said lumen delivers a drug, a reagent or a device to or beyond a distal tip of said body-insertable apparatus.

29. (Previously presented) The apparatus of claim 27 wherein said lumen provides suction sufficient to draw an analyte into proximity with the light source, at least one of the probes and the detector such that the analyte can be analyzed.

30. (Original) The apparatus of claim 27 wherein said lumen comprises an infusion lumen.

31. (Previously presented) The apparatus of claim 1 wherein said detector detects light emission at multiple wavelengths.

32. (Previously presented) The apparatus of claim 31 wherein said detector comprises a photodiode.

33-43. (Canceled)

44. (Currently amended) A method of performing *in vivo* examination of a mammalian body, said method comprising:

(a) providing a device comprising a light source, an array of probes, and a detector wherein each of the probes comprises at least one ~~optically detectable~~ probe material having an affinity for an analyte ~~and an optically detectable property when the probe material is exposed to the analyte~~;

(b) inserting said device into said mammalian body until said probe contacts an analyte in an area of interest;

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(c) generating light from the light source to illuminate at least one of the probes containing at least one probe material that emits a secondary light when the probe material is in contact with the analyte to which the probe material has an affinity;

(d) detecting ~~an optical signal representative of the optically detectable property of~~ the secondary light emitted by at least one of the ~~probes~~ probe materials through said detector; and

(e) converting said ~~optical signal~~ secondary light to an electrical signal using said detector.

45. (Previously presented) The method of claim 44 comprising contacting at least one of the probes with an oligonucleotide.

46. (Previously presented) The method of claim 44 comprising contacting at least one of the probes with a protein.

47. (Previously presented) The method of claim 44 comprising providing at least one probe that is fluorescently labeled.

48-49. (Canceled)

50. (Previously presented) The method of claim 44 further comprising providing the probes with a readable polydeoxynucleotide array.

51. (Previously presented) The method of claim 44 further comprising disposing the probes in a plurality of chambers within a frame.

52. (Previously presented) The method of claim 51 further comprising providing said frame at least partly in a molded material.

53. (Previously presented) The method of claim 51 further comprising providing said frame at least partly in a foraminous material.

54. (Previously presented) The method of claim 44 further comprising using optics to direct the light generated from the light source to at least one of the probes.

55. (Previously presented) The method of claim 54 wherein said step of using optics comprises adjusting a mirror.

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56. (Previously presented) The method of claim 44 further comprising transmitting and processing said electrical signal.

57. (Previously presented) The method of claim 44 further comprising amplifying said electrical signal.

58. (Previously presented) The method of claim 44 further comprising displaying said electrical signal.

59. (Previously presented) The method of claim 44 further comprising mixing the probe material with an ink to form a probe-material-filled ink and depositing said probe-material-filled ink upon a substrate.

60. (Previously presented) The method of claim 59 further comprising depositing a plurality of probe-material-filled inks upon said substrate in a specific ink pattern.

61. (Previously presented) The method of claim 60 further comprising protecting said ink pattern with a topcoat.

62. (Previously presented) The method of claim 61 wherein said topcoat comprises a dissolvable gel.

63. (Previously presented) The method of claim 61 wherein said topcoat comprises a polymer material dissolvable only upon application of a solvent.

64-65. (Canceled)

66. (Previously presented) The method of claim 44 comprising providing the light source with a light-emitting diode.

67. (Previously presented) The method of claim 44 wherein step (c) comprises generating radiation of wavelengths in a range from about 1100 nm to about 250 nm.

68. (Currently amended) The method of claim 44 comprising providing said detector with a photodiode responsive to said ~~optical signal~~ secondary light emitted from the at least one of the [[probes]] probe materials.

69. (Previously presented) The method of claim 44 comprising providing said detector with a light wavelength detection system.

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70. (Previously presented) The method of claim 69 further comprising providing said light wavelength detection system with a bandpass filter.

71. (Previously presented) The method of claim 44 comprising providing said device with a catheter.

72. (Previously presented) The method of claim 44 comprising providing said device with at least one lumen extending through the length of said device.

73. (Previously presented) The method of claim 72 further comprising delivering a drug, a reagent or a device through said lumen to or beyond a distal tip of said device to affect said area of interest.

74. (Previously presented) The method of claim 72 further comprising using said lumen to provide suction such that said analyte is drawn into contact with at least one of the probes.

75. (Currently amended) ~~The method of claim 44 further comprising~~ A method of performing *in vivo* examination of a mammalian body, said method comprising:

(a) providing a device comprising a light source, an array of probes, and a detector wherein each of the probes comprises at least one optically detectable probe material having an affinity for an analyte and an optically detectable property when the probe material is exposed to the analyte;

(b) inserting said device into said mammalian body until said probe contacts an analyte in an area of interest;

(c) generating light from the light source to illuminate at least one of the probes;

(d) detecting an optical signal representative of the optically detectable property of at least one of the probes through said detector;

(e) converting said optical signal to an electrical signal using said detector; and

(f) introducing to said area of interest a lysing system to facilitate contact between said analyte and at least one of the probes.

76. (Previously presented) The method of claim 75 further comprising using ultrasonic energy to rupture a cell membrane at said area of interest.

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77. (Previously presented) The method of claim 75 further comprising using a pressurization and evacuation system to rupture a cell membrane at said area of interest.

78. (Previously presented) The method of claim 75 further comprising using a mechanical force to rupture a cell membrane at said area of interest.

79. (Previously presented) The method of claim 78 further comprising using a lysing head driven by a driveshaft to rupture said cell membrane.

80. (Previously presented) The method of claim 44 further comprising implanting said device in said mammalian body.

81. (Currently amended) ~~The method of claim 44 further comprising~~ A method of performing *in vivo* examination of a mammalian body, said method comprising:

(a) providing a device comprising a light source, an array of probes, and a detector wherein each of the probes comprises at least one optically detectable probe material having an affinity for an analyte and an optically detectable property when the probe material is exposed to the analyte;

(b) inserting said device into said mammalian body until said probe contacts an analyte in an area of interest;

(c) generating light from the light source to illuminate at least one of the probes;

(d) detecting an optical signal representative of the optically detectable property of at least one of the probes through said detector;

(e) converting said optical signal to an electrical signal using said detector; and

(f) anchoring said device in said area of interest through an anchor.

82. (Previously presented) The method of claim 81 further comprising providing said anchor with a therapeutic tip for administering a therapeutic agent.

83. (Previously presented) The method of claim 82 further comprising separating said therapeutic tip from the rest of said device and leaving said therapeutic tip within the area of interest after removal of said device.

84. (Previously presented) The method of claim 82 further comprising retrieving said therapeutic tip.

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85. (Previously presented) The method of claim 84 further comprising retrieving said therapeutic tip through a tether attached to said therapeutic tip.

86. (Previously presented) The method of claim 82 further comprising controlling a function of said therapeutic tip from outside said body by transmitting an electrical signal through a tether attached to said therapeutic tip.

87. (Previously presented) The method of claim 44 further comprising using a carrying device to deliver said device to the area of interest.

88. (Previously presented) The method of claim 87 further comprising selecting said carrying device from the group consisting of a hollow needle, a guide wire, a balloon catheter, an ultrasound catheter, an introducer sheath, and a balloon angioplasty catheter.

89. (Currently amended) A method of performing *in vivo* examination of a mammalian body, said method comprising:

(a) providing a device comprising a light source, an array of probes, and a detector, wherein each of the probes ~~comprise~~ comprises at least one optically ~~detectible~~ detectable probe material;

(b) inserting said device into said mammalian body until said probe contacts an analyte in an area of interest;

(c) introducing to said area of interest a lysing system to facilitate contact between said analyte and at least one of the probes;

(d) generating light from the light source to illuminate at least one of the probes;

(e) detecting an optical signal representative of an optical property of at least one of the probes through said detector; and

(f) converting said optical signal to an electrical signal using said detector.

90. (Previously presented) The method of claim 89 further comprising using ultrasonic energy to rupture a cell membrane at said area of interest.

91. (Previously presented) The method of claim 89 further comprising using a pressurization and evacuation system to rupture a cell membrane at said area of interest.

92. (Previously presented) The method of claim 89 further comprising using a mechanical force to rupture a cell membrane at an area of interest.

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93. (Previously presented) The method of claim 92 further comprising using a lysing head driven by a drive shaft to rupture said cell membrane.

94. (Currently amended) A method for performing *in vivo* examination of a mammalian body, the method comprising:

(a) providing a device comprising a light source, an array of probes, and a detector, wherein each of the probes ~~comprise~~ comprises at least one optically detectable probe material;

(b) inserting said device into a mammalian body until said probe contacts an analyte in an area of interest;

(c) anchoring said device in said area of interest with an anchor;

(d) generating light from the light source to illuminate at least one of the probes;

(e) detecting an optical signal representative of an optical property of at least one of the probes through said detector; and

(f) converting said optical signal to an electrical signal using said detector.

95. (Previously presented) The method of claim 94 further comprising providing said anchor with a therapeutic tip for administering a therapeutic agent.

96. (Previously presented) The method of claim 95 further comprising separating said therapeutic tip from the rest of said device and leaving said therapeutic tip within the area of interest after removal of said device.

97. (Previously presented) The method of claim 95 further comprising retrieving said therapeutic tip.

98. (Previously presented) The method of claim 97 further comprising retrieving said therapeutic tip through a tether attached to said therapeutic tip.

99. (Previously presented) The method of claim 95 further comprising controlling a function of said therapeutic tip from outside the body by transmitting an electrical signal through a tether attached to said therapeutic tip.

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